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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,987	03/30/2004	Hiroshi Hashimoto	Q80521	3149

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EXAMINER

RESAN, STEVAN A

ART UNIT PAPER NUMBER

1773

DATE MAILED: 01/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/811,987

Applicant(s)

HASHIMOTO ET AL.

Examiner

Stevan A. Resan

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3-30-2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10,12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimozawa et al US 4746558.

Shimozawa et al disclose a magnetic recording medium comprising a non magnetic support, a radiation cured layer formed by applying a layer containing a radiation curing compound and curing by exposure to radiation and a magnetic layer having a ferromagnetic powder dispersed in a binder. The radiation cured layer may include 20-200 parts of an inorganic powder relative to 100 parts of a binder which overlaps the range of claim 1.

It would have been obvious to one of ordinary skill in the art to vary the level of inorganic powder to regulate surface roughness of the coating.

Shimozawa et al teach the use of barium ferrite magnetic particles as in claim 12 (Col 2 lines 20-27) and inorganic particles as in claims 3-6 (Col 16 lines 48-62). (Note that substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. In re Fount 213 USPQ 532 (CCPA 1982); In re Siebentritt 152 USPQ 618 (CCPA 1967); Graver Tank & Mfg. Co. Inc. v. Linde Air Products Co. 85 USPQ 328 (USSC 1950).

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The medium may be cured by electron beam or ultraviolet radiation as in claims 8-9 (Col 17 lines 51-58), the radiation-curing compound may be a difunctional acrylate or difunctional methacrylate as in claim 10 (Col 4 lines 31-41). It would have been obvious to one of ordinary skill in the art to vary the viscosity by the use of radiation curing compounds having differing viscosities (including that of claim 13) optimizing for providing as rapid a coating speed consistent with good surface properties. (The radiation curing compounds listed at Col 10 lines 5-55 include those having the claimed viscosity e.g. diethyleneglycol dimethacrylate).

Shimozawa et al do not teach a preferable range of thickness for the substrate including that of claim 14. However Shimozawa teaches the use of polymers that are art recognized for their use in very thin magnetic tapes. It would have been obvious to one of ordinary skill in the art to use such a polymer in order to use a thin substrate and thus increase the amount of data that could be stored on a given diameter tape reel.

Shimozawa et al do not teach the use of a non magnetic layer containing non magnetic powder and binder between the magnetic layer and the radiation cured layer (as in claim 2). However it would have been obvious to one of ordinary skill in the art to use an intermediate layer in order to enable production of thinner magnetic layers which allow for higher density recording. It would also have been obvious to one of ordinary skill in the art to use the same inorganic powder in the radiation cured layer and any intermediate layer (as in claim 7) in order to reduce inventory items.

3. Claims 1-11,13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba et al US 6074724 in view of Kamada et al US 4619856.

Inaba et al disclose a magnetic recording medium comprising a non magnetic support, a non magnetic layer having a non magnetic powder dispersed in a binder, and a magnetic layer having a ferromagnetic powder dispersed in a binder (as in claims 1, 2,11 See col 4 lines 16-32). The substrate thickness may be in the range of claim 14 (Col 13 lines 16-17). Inaba et al also teach the use of an adhesive layer between the substrate and the intermediate layer (Col 14 lines 33-36). Inaba et al do not give details of this layer.

However Kameda et al teach the use of a radiation cured layer formed by applying a layer of a radiation curing compound and curing by exposure to radiation. Kameda teach the use of particles in this layer as in claims 3-6 (Col 4 lines 1-4) and curing as in claims 8 and 9 (Col 3 line 24). Kameda et al teach radiation curing compounds that include those as in claims 10,13 (Col 2 line 52). Kameda teach the varying of the particle size and content in order to vary surface roughness.

Therefore it would have been obvious to one of ordinary skill in the art to use the radiation cured adhesion layer of Kameda et al in the media of Inaba et al in order to improve adhesion and control surface roughness by varying particle content as in claims 1,15. It would also have been obvious to one of ordinary skill in the art to use the same inorganic powder in the radiation cured layer and any intermediate layer (as in claim 7) in order to reduce inventory items.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Bilkadi US 5639546 is cited for teaching the use of colloidal inorganic particles in a radiation cured primer layer for magnetic recording media.

Freche et al is cited for teaching radiation curable compositions containing acrylate diluting monomers which include tripropylene glycol diacrylate.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stevan A. Resan whose telephone number is 571-272-1513. The examiner can normally be reached on Tues-Thurs from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones, can be reached at 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**STEVAN A. RESAN**  
**PRIMARY EXAMINER**